Why Systems?

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‘Look at my finger pointing.’ (Warren McCulloch)

Control by Communication

SYSTEMS HAVE never really had a good press. They seem to suggest that there is more order and reason in the world than any of us is ready to admit and able to account for. The idea of systems in itself seems to favour those in the world who seek ways to control and methods to monitor it. Many people think that hidden links must exist between the notion of system on the one hand and the notion of organization on the other, and not just any organization, but a peculiarly bureaucratic and Tayloristic one. The reason for this is that systems are supposed to organize things in a way that is alien to these things and that they are moreover able to achieve that organization by an awkward, both Hegelian and Darwinian combination of reason and natural selection.

The concept of systems and the idea of a systems theory are certainly entangled with modern society’s attempt to monitor and control itself. The question, however, is which ideas regarding control does systems theory entertain? I would like to suggest that serious thought be given to the title of one of the first books in the field of systems theory, which is Norbert Wiener’s *Cybernetics: or Control and Communication in the Animal and the Machine* (1961). This is a book which is not very easy to read, and which is not read very often. Yet its central point is simple: at least in social sciences – if not in all other sciences taking a time factor and the interdependence of observer and phenomenon into account – control cannot be mentioned without speaking of communication. Any control is an act of communication and can only be successful to the extent that communication is successful. This is what most critics of control fail to see.

Any insight into the communication dynamics of control is a deconstructive one. As soon as we enter the concept of communication, out goes

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the concept of causality. Communication means to be unsure about cause and effect. We have to wait for causes to effect their effects, and for effects to be caused by causes as soon as communication comes into play. Communication is the concept that steps in as soon as Gregory Bateson's (1979) statement that 'the cause *is not* the effect' is taken seriously. This means that 'something' is going to happen for a cause to effect its effect, and for an effect to be caused by a cause. Causes have to select their effects, and effects have to select their causes in a world that is characterized by both over-determination and under-determination, i.e. by there being lots of causes and lots of effects floating around, with no definite relationship between them. Because most, if not all, things (Luhmann, 1990a) happen simultaneously anyway, there cannot be a causal link between them (Whitehead, 1979).

Control means to establish causality ensured by communication. Control consists in reducing degrees of freedom in the self-selection of events. This is why the notion of 'conditionality' (Ashby, 1961) is certainly one of the most important notions in the field of systems theory. Conditionality exists as soon as we introduce a distinction which separates subsets of possibilities and an observer who is forced to choose, yet who can only choose depending on the 'product space' he is able to see. If we assume observers on both sides of the control relationship, we end up with subsets of possibilities selecting each other and thereby experiencing, and solving, the problem of 'double contingency' so much cherished by sociologists (Parsons and Shils, 1951: 15–16; Luhmann, 1995b: ch. 3). In other words, communication is needed to entice observers into a self-selection and into the reduction of degrees of freedom that goes with it. This means there must be a certain gain in the reduction of degrees of freedom, which for instance may be a greater certainty in the expectation of specific things happening or not happening.

Control, based on communication, implies a negotiation and a kind of contract to be concluded. It implies consent, if not collusion, on both sides of the control relationship, even if that consent, which must be an (uncertain) symmetrical one, is at once dissimulated in favour of the establishment of a (stable) asymmetrical relationship. If that sounds Machiavellian, it is. Machiavelli was among the first to think, if not in terms of then at least in the spirit of systems theory, since he looked at improbable mechanisms of power rather than at a pre-established cosmos of virtues guaranteeing the order assumed by the princes.

A system is a way to communicate control if there is no other way to control but to communicate. It is a way of considering how control is possible if control makes the controller and the controllee do away with degrees of freedom they would otherwise enjoy, and if it makes them resort to communication instead. The system is the 'white box' that emerges from two interacting black boxes (Glanville, 1979, 1982). It has a higher reflective power than the whole, which encompasses system *and* environment, because the system alone knows about the degrees of freedom it eliminates. And it knows the reasons for eliminating them (relating both to the environment and

to the system) and possible ways of retrieving these degrees of freedom (which, however, would dissolve the system). Tell me about the constraints you and your associates accept, Gregory Bateson (1972) might have said, and I will tell you about the dance you can do with them (Bateson, 1979).

In this article I shall take a close look at the central notion of systems theory, which is, after all, the notion of the 'system'. The aim of the article is to show that, even in Luhmann, the motive to use the notion of system certainly consists in looking at possible order among all the noise surrounding it. I shall consider the 'pattern that connects' (Bateson, 1972) as well as the 'matrix that embeds' (von Foerster, 1997). But the most important point may well be that the introduction of the concept of system amounts to nothing less than the introduction of the notion of its very unpredictability. The reason for this is that 'system' means nonlinear recursion, and that is equal to unpredictability (von Foerster, 1997: 47). Niklas Luhmann's translation of this insight was to develop a rationality and morality constituted in the ability to 'adapt momentarily to passing situations'. This rationality and morality he saw instituted not only in modern and postmodern consciousness but also in the most complex social systems like politics, economics, law, science, arts and education.

This article will try to spell out some of the notions which epistemologically underpin such a notion of 'system'. Systems theory in line with Luhmann's intellectual spirit may well be read as an attempt to do away with any usual notion of system, the theory in a way being the deconstruction of its central term. Luhmann's theory never lost sight of such a deconstructive ambition. His work on organization (Luhmann, 1968, 1995a) did away with any presumption of 'function', 'hierarchy', 'purpose' and 'rationality'. His work on 'old-European' semantics (Luhmann, 1980–95) dispensed with the notions of 'subject', 'freedom', 'nation', 'nature' and 'culture'. Above all, his theory of society (Luhmann, 1997a), which was his only ever 'project', eventually emptied the notion of society of any content other than the highly improbable capacity to reproduce itself, even after attaining a status and dynamics as complex as ours. He always tried to look at the 'gypsies' (Baecker, 1999a; Luhmann, 1996) that might cross the very boundaries he was analysing, as society's ways to differentiate, maintain and reproduce itself. And he always knew (as Durkheim did) that the more stressed these boundaries appear, the more momentous will be their reproduction. Edmund Husserl, one of the few thinkers he admired (others were Talcott Parsons, Heinz von Foerster and Humberto Maturana), saw the possibility of protecting the 'spirit of Europe' only by making sure that the 'gypsies crossing its boundaries' were excluded from it (see Husserl, 1976: 318). Luhmann thought otherwise.

The Intelligence of a System

There is perhaps no idea more systems theoretical in spirit and elaboration than the idea that any part of a sum is more intelligent than the sum (Wiener, 1961: 162). This is an idea which puts any thinking in terms of a possible

order back on its feet. Even if the whole guarantees a certain order, it is always the part whose intelligence is asked for in order to agree with that order. And the reasons for the parts are different from those of the whole – if there are any. It took Giambattista Vico, Karl Marx and Antonio Gramsci, among many others, to insist on the idea of a human and social practice 'finding its own founding', to quote Stanley Cavell (1989). For an account of the slow (and ancient: Vernant, 1984) development of old-European thinking towards ideas of spontaneous self-organization and networking see the chapter on the self-description of society in Niklas Luhmann's chef d'œuvre, *Die Gesellschaft der Gesellschaft* (1997a: 866–1149).

The question, however, is why the whole is less intelligent than any part of it. Gotthard Günther's (1976: 317–18) answer to this question is that it takes an environment, or better: the distinction from an environment, for a subject to be able to reflect on itself (see also Lacan, 1966). And this 'leads to the surprising conclusion that *parts of the Universe have a higher reflective power than the whole of it*, as has been recognized for a long time' (Günther, 1976: 318). The whole tends to lack intelligence since it fails to reflect on an environment. Instead, it tries to absorb any environment and to insist on its own wholeness. Yet, this establishes a drive which leads not to reflection but rather to generalization and abstraction. And that is how all the details and specifics are lost, whose distinction from other details and specifics we need in order to develop intelligence.

A second reason is that intelligence starts where an entity is able to take its own lack of knowledge into account and to search for the knowledge it lacks in other entities which presumably are in a better position to bring forth the knowledge sought (Baecker, 1994). Intelligence begins where one is able to substitute the knowledge of others for one's own non-knowledge.

That, too, presupposes being distinct from an environment, which becomes the search space for the lacked knowledge. The reason why systems theory accepts the constraints of the introduction of the concept of a system (a system concept?) – think of Luhmann's (1995b: 12) phrase: 'The following considerations assume that there are systems' – is the gain to be derived from reflecting on the distinction between system and environment. Interestingly, modern thinking, as Luhmann (1995c: 144–6) observes, introduces the notions of 'milieu', 'environment' and '*Umwelt*' at the same time as it no longer recognizes any 'outside':

- All exclusions, most notably those of 'barbarians', are transformed into inclusions, as Michel Foucault was apt to show in all its consequences. Our notions of knowledge and power become knowledge about and power over ourselves yet have to invisibilize just that.
- Most philosophies deconstruct any notion of 'outside' by introducing the unknowable *Ding an sich* (Kant), an absolute *Geist* (Hegel) or an ontological *epoché* (Husserl). For Hegel, just exclusion is excluded when all notions are able either to work their negative or to be taken up in some higher notion, thereby constituting bourgeois semantics.

- And 'culture' is reinvented in modern society in order to transform all possible distinctions between conceivable ways of life into comparisons among them. These comparisons no longer exclude but rather differentiate, and in a highly mobile way, between inclusions.
- The irony of this exclusion of exclusions, as Luhmann (1995c) also remarks, is that at the same time as modern society loses the notion of an 'outside', it seems to produce such an outside on a hitherto unprecedented scale by excluding two-thirds of the world population from participation in politics, economy, law, education, health and even religion (church religion). Without a notion of any outside, exclusion is not explicit. It simply happens because there are more and more people in the world who just cannot be taken into account by these systems of the society. They lack addresses, money, and access to mass media and certificates or references.

The notions of 'milieu', '*Umwelt*', 'environment' refer to 'outsides' inside the world. They contribute to the constitution of organisms, systems and persons as their other side. Life itself is considered to be a mutual relationship between an organism and its niche (Claude Bernard). Depriving it of its surroundings can kill an organism. Or the behaviour of a person is what it is because it relates that person to his or her environment and thus is a function of a 'field' consisting of both the person and the environment (Kurt Lewin). If we take a person out of a certain environment, we get a different person. We are taught not to believe this, because that is the way we can learn to move out of certain environments and enter different ones, but this does not change the truth of the observation.

A Split Causality

It is the same with systems. A system is not a mechanical device to ensure closure and to control everything inside it. Rather, a system is a highly precarious 'dance' of ensuring a distinction between the system and its environment, which is the only way of ensuring the system reproduces itself. The notion of a system gives up the idea of ordering the world causally by attributing causes and effects to its different phenomena. Instead, it proceeds from the assumption that there are always too many and too few causes and too many and too few effects to be taken into account. It splits causality into two parts. There is a first and indeterminate, yet possibly disruptive and equally possibly stimulating causality reaching a system from its environment – any determination of that causality already being a performance of the system, an 'enactment' (Weick, 1979) of the environment by the system. And there is a second causality, which consists in the self-determination of the system by the constraints under which it is placed and/or which it is ready to accept.

These are two types of causality that are more than a little questionable to classical scientific thinking, since the first is an *indeterminate* causality and the second a *circular* one. They are paradoxical in that they negate the very causality they claim, the first one imagining causes that do

not effect effects, and effects that are not caused by causes, the second one imagining an effect being the cause of its own cause. Neither type existed previously, except in certain kinds of mystical thinking. That is why they are highly questionable. Yet they are reinvented by systems theory and utilized by it anyway. Systems theory itself seems in a way to 'dance', and that is why there are more relatives of it to be found in aesthetic thinking than in classical scientific thinking. Yet that is slowly changing, the more scientific thinking begins to be able to take into account the non-linearity of its phenomena.

These ideas on control and causality run counter to any idea that systems theory is, first of all, a 'holistic' kind of thinking, taking those feedbacks into account that tend to be ignored by any technical thinking, which is interested in ensuring the isolated working of things and which is helped by 'objectivist' thinking ('objectivism' being a way to cut off further arguments by socially binding the observer). Systems theory is not a way of ensuring the unity and wholeness of the world regarded as a united system. Instead, it speaks of the 'ecological' unity of 'mind and nature' (Bateson, 1979) which is ensured by all systems seeking their reproduction in their environment and thereby producing a pressure of co-evolution which other systems either endure and exploit or pass by, risking their own extinction. The unity of which systems theory speaks is not the unity of a whole but the unity of systems that are ecologically linked with each other, lacking any 'super-system' to ensure and organize that ecology, let alone direct it teleologically to a better future.

A Theory of Communication

These considerations regarding systems cannot begin to answer the question of how to think of communication. We go to another book, which has been even more influential and controversial than Wiener's *Cybernetics* and which, despite its mathematics, is far from being read univocally. I am referring to Claude E. Shannon's and Warren Weaver's *Mathematical Theory of Communication* (1963). Everybody thinks that here we have a clear-cut vision of communication which consists in transmitting the content of messages from a sender to a receiver via a channel possibly disturbed by noise. And almost everybody trained in the humanities or social sciences is quick to dismiss it as a purely technical vision, which fails to take into account the semantic, let alone the pragmatic, aspects of communication.

It is easy to quote Shannon and Weaver, both of whom are eager to put brackets around the questions of semantics. Yet one should know that questions in brackets are not really questions left aside. Rather, they are tackled in a different and perhaps completely new way, following the old perception that problems cannot be resolved by attacking them directly but only by circumventing them and doing something else, which results in dissolving the problem or at least in posing the question differently.

Shannon and Weaver do indeed deliver a definition of a message which is more important for a comprehension of communication than any sender/receiver/channel/noise figure, even if that definition has only seldom

been taken seriously (see, however, Ashby, 1956; Bateson, 1972: 406–7; Baecker, 1999b). Even Jürgen Ruesch and Gregory Bateson in their *Communication: The Social Matrix of Psychiatry* (1987) do not focus on that point, but instead develop the famous distinction between the report and the command aspects of communication. Yet Shannon proposed defining a message in a way which I take to be far more provocative than the vision of the channel. I even believe that it might be possible to inquire into such seemingly different philosophies as McLuhan's media theory, Lacan's psychoanalysis, Foucault's discourse theory, Deleuze/Guattari's rhizomatics, Derrida's deconstruction and Luhmann's sociology by showing that they all subtextually share an interest in the consequences of that definition.

Shannon (Shannon and Weaver, 1963: 31) quite innocently defined a message as 'one *selected from a set* of possible messages' and went on to say: 'The system must be designed to operate for each possible selection, not just the one which will actually be chosen since this is unknown at the time of design.' Ironically, he defined that aspect as the 'engineering problem' of communication, bracketing the 'semantic' question of what a message means with reference to 'certain physical or conceptual entities'. I would propose calling this engineering problem the semantic and pragmatic problem of communication as well. And I would put in brackets not these latter problems but the idea that the meaning of a message 'refers' to a physical or conceptual entity. I admit that it is probably only possible to see the relationship between the engineering and the semantic problem thanks to George Spencer-Brown's *Laws of Form* (1977) and to bracket the reference problem thanks to the epistemology of 'constructivism' (e.g. Luhmann, 1990b). The *Laws of Form* conceives of a distinction making sense because it separates, i.e. relates, a 'marked space' (selection) and an 'unmarked space' (set of possibilities). And constructivism conceives of references as being organized by distinctions between selections, and not by the entities they are meant to refer to, or by an observer equipped with categories of reason and perception thanks to the clemency of the gods.

Shannon had in mind that you can only read a 'C' if you know that it belongs to the Latin alphabet and if the context tells you that it is not the number ('100') but the letter which is relevant. Thus the set of possible messages 'A, B, C . . . Z' must be technically defined before 'C' as one possible message out of this set makes sense. Yet we may easily generalize this conception and speak of a message to the extent that it is understood with regard to its being a selection out of a set of possible other messages. In the case of a technical communication device (or code) the set of possible other messages is technically defined, i.e. constrained.

In the case of social communication, its semantics and pragmatics, the set of possibilities is not technically but socially defined, i.e. constrained. Social definitions are not as easily demarcated as technical definitions. Yet we only have to look at semantics and pragmatics recursively reproducing themselves in order to find that out, and to establish how these definitions are worked out. Among the options put forward by the set of possibilities,

the testing of the definition of the possibilities figures prominently, as do various conflicts about their definition and the (self-referential) discussion of the definitions, including the language which has to be presupposed to carry on the communication. And if we take this into account, Shannon's generalized definition of a message seems to be able to cover the whole field of communication.

Yet the important point is that we do not understand a message by looking at the 'transmitted' content but by looking at the selection being made among a set of other possibilities. In other words, we have to look at both sides of the distinction in the sense of Spencer-Brown (1977): at the selection being selected and the set of possibilities from which the selection is made. Of course, in the case of social communication the set of possibilities is an indeterminate one, determined by 'nothing else' than social coding, social media and the situations which determine the different actors' orientation towards the situation (Parsons and Shils, 1951; Becker, 1982). Without a 'look' at the set of possibilities, we have no chance of understanding anything at all. This can easily be put to the test by entering a church, a university, a shop floor, a pub or any other socially defined situation (and which, for us, are not?). We start to become 'sociologists' as soon as we begin to look at situations, defining their set of possibilities with the help of actors trying this one or another, expanding (and contracting) the set of possibilities by transcending the ones observed, trying to refuse to select and so on.

In any case there is a double observation of the message being selected: an observation of the message itself and an observation of the set of possibilities from which it is selected. And there are at least two important consequences of this. The first one is Heinz von Foerster's (von Foerster and Pörksen, 1998: 100) 'principle of hermeneutics' which states that not the speaker but the listener decides on the meaning of a message, since it is the latter whose understanding of the set of possibilities constrains the possible meaning of the message, no matter what the speaker may have had in mind. The second consequence is that there are no semantics and pragmatics of language nor of any other communication which should not be sociological ones, since the fascinating question now is how, i.e. by which work of meaning in society (Luhmann, 1971, 1997a), the sets of possibilities are socially and culturally defined, observed and argued upon.

That is why 'systems' once again come to the fore (von Foerster, 1981). Systems first of all explain that there are sets of possibilities before any specific possibility can be selected at all. And, second, they explain that the set of possibilities is not a given one but is reproduced by the very selections being feasible which recursively constitute (by being remembered, forgotten and reinvented) that set of possibilities, just as Anthony Giddens's (1984) 'structures' are used and reproduced by his 'actions'.

Therefore, communication indeed means production of redundancy (Bateson, 1972: 406–7). It defines both the message being selected and the set of possibilities from which it is selected. That is why Luhmann (1971),

with reference to Edmund Husserl, speaks of the 'horizon' of possible references made expectable by each one of them. Communication consists in checking out that redundancy, and that is why it is stimulated both by non-knowledge *and* by knowledge, by what has been said *and* by what has not been said, by the determinate *and* by the indeterminate, and by the meaning included *and* by the meaning excluded (Luhmann, 1997a: 37–8).

It is Spencer-Brown's 'form' which is employed in communication, always looking both at the inside of a distinction and at the outside. Though this is a very simple and 'mathematical' account of communication, it leads to an envisioning of its most subtle complexities since we now begin to look into the fabrication of the set of possibilities in social situations. Possible areas for research abound, from marital discourse to lawsuits, business negotiations, organizational behaviour and theories and methods in science.

A Construction Embedded in Indeterminateness

To do systems theory means to be interested in shifts of attribution. Learning from the attribution theory (e.g. Heider, 1958), systems theory tries to make clear that an observer always chooses the perspective of his observations, i.e. he chooses (a) himself as the observer who observes what he observes and how he observes it, and he chooses (b) whether he attributes the 'causes' of a phenomenon to itself or to its context, situation or environment. The choice in (b) possibly depends on the choice in (a). If you want to be a capable actor you tend to insist on others being capable actors as well, i.e. you tend to attribute actions to them rather than to their situation. If you know that you are what you are depending on the situations you are in, you tend to assume that this is equally true for others.

But even before having to acknowledge that an observer chooses himself by doing what he does and how he does it, he has to discover that he has the choice of either observing a 'thing' determined internally by its inner-directed strong individuality or of observing a 'medium' conditioned externally by forms impinging themselves on it (Heider, 1959). Having discovered that he can do either one, he can also try to do both and to switch between the two possibilities, thus enriching his own perspectives of observation and his relationship to the phenomenon under scrutiny. He begins to vary his own position, introducing degrees of freedom into his relationship to that phenomenon. This of course means that the 'white box' he is in together with the phenomenon and thanks to the interactions with the phenomenon, is a constantly changing one, and that it is able to maintain its changes only to the extent that both phenomenon and observer are accepted as 'black boxes' which cannot observe themselves, while at the same time varying their relationship to the other (Glanville, 1982). That is the condition for 'dialogue': you have to accept that you cannot know yourself or, of course, the other while searching out possibilities of interaction.

Right from the beginning of the development of his theory, Niklas Luhmann was explicit about why he was interested in observing 'systems': systems are what put themselves in as soon as an actor or his action seeks

to refer to a phenomenon (Luhmann, 1966). They put themselves in because one can never start anything at all from scratch, neither one's own life nor a relationship to whatever phenomenon. Systems, regarded as non-self-evident sets of possibilities, are already there; they emerge, they enable and they constrain what is to happen, while being nothing else but the relationship between the actor and the phenomenon who both, however, are what they are thanks to that relationship.

What is here called 'system' often went under a different and in many cases a more religious name. In this respect, systems theory is heir to theology and at the same time one of the most recent moves to de-theologize our thinking and make it more pragmatic. Yet in the same move it resists any attempt to 'humanize' our thinking. There is no substitution of 'human beings' for the 'gods' of earlier times. A system is a self-similar, non-linear and recursive structure (Turner, 1997) that manifests itself as the latent structure on which any phenomenon able to reproduce 'itself' has to rely when reproducing itself. A system is what we begin to observe when we try to observe how a reproduction is done that has nothing but the uncertainty of the next event and the instability of each current event to build upon. Indeed, a system is what we have to assume as soon as we discover that the very opacity of our current condition is the medium for any control to be possible (Luhmann, 1997b).

That is the reason why George Spencer-Brown's *Laws of Form* (1977) have become so prominent in sociological systems theory (Baecker, 1999c). They inform us about the necessity to be doubly indeterminate about what we are doing. Any distinction we may draw is a mark only with respect to the indication it is practising. This is valid for any 'cognitive' act or operation we may imagine, and possibly for social systems as well as for mental, organic and physical ones (Bourgine and Varela, 1992). Any operation of reproduction has to be indeterminate with respect to the 'unmarked state' it is excluding, while choosing the indication (or inclusion) it is choosing. And it has to be indeterminate with respect to the operation itself on which it is relying in order to link both to previous and future acts of reproduction.

The whole construction is 'embedded' in indeterminateness. The very determinacy of the indication, i.e. the inside of the distinction, presupposes indeterminacy with respect to the outside of the distinction and the operation of the distinction ('cross') itself. That is why operations of reproduction have to be self-referential (Kauffman, 1987, 1996). The self-reference compensates for the indeterminateness of the construction. It is the 'tool' the systems use in order to be able to determine the indeterminate from one case to the next – taking into account, to vary Heinz von Foerster's (1993) phrase, that it is only the undecidable questions that we are able to decide upon, i.e. that it needs indeterminateness for any determination to be able to continue to be valid.

If we look at Spencer-Brown's (1977: 4) form of distinction (Figure 1) we see immediately that of the three values that constitute an operation of reproduction (the indication or marked state, the unmarked state and the

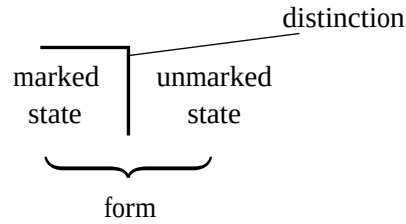

Figure 1 The Form of Distinction

operation of separating the marked state from the unmarked state), only one is determined by the operation in the event of the reproduction: the marked state. The other two play along, but they can only be realized subsequently, then relying on future operations which have their own unmarked state and their own unobservable operation. The drawing of a distinction, in other words, is an operation of cultivation: we have to presuppose the unavailable without which nothing is going to happen. But when we look at it, it withdraws. Nevertheless, the way in which the available is handled will determine whether the unavailable plays along or not. Jacques Derrida's (1968) *différance*, which he calls a *forme médiale*, is a perfect model of this kind of construction, whose implicit moral is that the more indeterminate your conditions, the more you may be the one who determines them by choosing the distinction and co-producing the form of the distinction that goes with it.

Of course, by entertaining such mathematics of self-reference, modern science is slowly re-approaching a wisdom already shared, for instance, by Indian shamanism, German Romanticism and Far Eastern Buddhism. Yet this should not be a reason to shy away from a sociology which is its own epistemology. Being able to 'stop the world' (Castaneda, 1974), to account for the indispensable *Unverständlichkeit* of our doings (Schlegel, 1967) and to plot the 'dependent-arising' (Hopkins, 1983; Nagarjuna, 1986) of everything we are able to observe in this world including ourselves, is nothing less than a precondition for the emergence of an 'ecology of non-knowledge' (Luhmann, 1998) which may be able to take account of the state of differentiation of modern society which we must be able to deal with both mentally and socially.

Conclusion

Systems theory may perhaps best be regarded as that kind of thinking which does away with the notion of system in all its traditional wordings. If we look at concepts like communication, control, conditionality and split causality, along with all kinds of self-referentiality, non-linearity and indeterminateness, it becomes evident that 'system' is the term which 'deconstructs' itself in order to check out what its value may be. It is a term attracting every possible assumption of organism, mechanism and information simply to see what they will look like when put under the scrutiny of systems theoretical thinking. It is a term that has sharpened our understanding of 'theory' like few

other notions. Like the notion of 'deconstruction' (Derrida, 1990), it not only put into words the idea that a 'theory' today consists in being attentive to the perhaps increasing improbability, if not 'impossibility', of our worlds of the social to be able to reproduce themselves as they did before. It also made the theory work.

When used in sociology, the term 'system' examines the fact that our traditional systems do not reproduce themselves as self-evidently as they used to (if they ever did so), as well as the fact that these systems have hitherto always been able to reproduce themselves nevertheless. The less we understand about how systems reproduction is done, the more it actually seems to happen. (Evidently, the reverse is true as well: the more we think we understand how systems reproduce, the less they are actually able to do so.) Sociology is not prepared to call a reproduction that we do not understand an effect of 'domination'. Instead, it looks for further ways to constitute and link communication which are perhaps so unobtrusive and at the same time obvious that we fail to see them, because we are trained to look only at things that change.

This is why one of the most important aspects of systems theoretical thinking is to proceed slowly, to look at things again, and to take time to spell them out. That, by the way, is the one lesson in the teaching of deconstructive reading which should be accepted above all. Systems theoretical thinking is most certainly still moving too fast. (Yet writing a lot, and fast, here means to be able to come back at things often enough.) Since both Talcott Parsons and Niklas Luhmann have already measured the entire field – and they did indeed take their time – we can go very, very slowly when checking out which theorems are able to show which phenomena. We should not jump, as systems do, from one event to the next simply to show that we can do so. Rather, we should look back at each instance, again as systems do, to see how we effected the last jump.

Thus, systems theoretical thinking is an epistemological device to look at the ways in which, by communication, three distinctions are established and implemented: (a) the social distinction between actor and observer, (b) the ecological distinction between system and environment, and (c) the temporal distinction between past, present and future. Systems theory begins to look at the degrees of freedom which modern society eliminated when evolving those structures that place acting within the field of observation, that discard the environment and re-read it into the system, and that emphasize a memorable past and an unknown future, making the present a field forever fraught with unreliable selections. In its sociological version, systems theory is inclined to believe that it is the temporal distinction into which we have to inquire when trying to find out how the ecological distinction may be reconsidered; and that it is the social distinction which is the medium of such an inquiry.

This is why modern society tends not to accept any format of social structures as self-evident; and also why there have to be lots of positions in modern society which insist on that self-evidence. It is not just by chance

that organizations, in particular, nowadays have to deal with competition between positions claiming their self-evidence (Baecker, 1999d). Organizations are the heuristic device of the self-deconstruction of modern society. In organizations, nothing is self-evident; and nowhere else is self-evidence as indispensable.

Yet with respect to society, organization and interaction alike, sociological systems theory looks at acting and observing; and from here it slowly reconstructs how to let time direct our doings and to risk the externalizations we just began to re-include in our observations. That is why, perhaps, future sociological systems theory will not look like systems theory at all. Certainly, Niklas Luhmann was among the people most surprised when he was constantly addressed as a 'systems theorist' even after attending a conference or writing an article with no (obvious) connection to the notion of system at all. He did not believe in systems. He used the notion of system as a methodological device to look at everything excluded by them. That is why his 'methodological preliminary remarks' in chapter 1.II (Luhmann, 1997a: 36–43) are so important and are so easily misunderstood. It is here that by criticizing any rule to stick to 'positive' data, he insisted on every system being the inclusion of everything it accepts as reproduction as well as the exclusion of everything else. Thus, there is no meaning which is not shadowed by the ignorance it sustains. A sociologist should be able to look at both sides of the coin and describe the ignorance communicated by the meaning a society and its different systems are eager to reproduce. It is Luhmann's intellectual move, or his way of 'sociological enlightenment', to point at the ignorance of the modern, and any other, society by fleshing out the reproductive knowledge it was and is able to deploy.

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